



PTO/SB/21 (09-04)

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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/658,906	
	Filing Date	Sep 10, 2003	
	First Named Inventor	Kulp, Thomas Jan	
	Art Unit	2877	
	Examiner Name	Nguyen, Dung T.	
Total Number of Pages in This Submission	15	Attorney Docket Number	SAN.001US0 (SD-8423)

**ENCLOSURES (Check all that apply)**

<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance communication to (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):  Return Postcard
<b>Remarks</b>		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name			
Signature			
Printed name	Steven Vosen		
Date	November 23, 2005	Reg. No.	45186

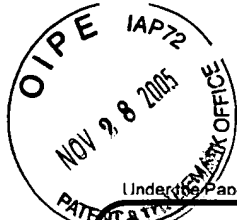
**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Signature			
Typed or printed name	Steven Vosen	Date	November 23, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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# FEE TRANSMITTAL

## For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 180.00

### Complete if Known

Application Number	10/658,906
Filing Date	9/10/2003
First Named Inventor	Kulp
Examiner Name	Nguyen, Dung T.
Art Unit	2877
Attorney Docket No.	SAN.001US0 (SD-8423)

### METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_

☒ Deposit Account Deposit Account Number: 50-0583 Deposit Account Name: SNL BY KCO

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee  
☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☐ Credit any overpayments

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### FEE CALCULATION

#### 1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

#### 2. EXCESS CLAIM FEES

##### Fee Description

	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims Extra Claims Fee (\$) Fee Paid (\$)  
- 20 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims Extra Claims Fee (\$) Fee Paid (\$)  
- 3 or HP = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of independent claims paid for, if greater than 3.

#### 3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets Extra Sheets Number of each additional 50 or fraction thereof Fee (\$) Fee Paid (\$)  
- 100 = \_\_\_\_\_ / 50 = \_\_\_\_\_ (round up to a whole number) x \_\_\_\_\_ = \_\_\_\_\_

#### 4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): 1.17(p) - Filing IDS

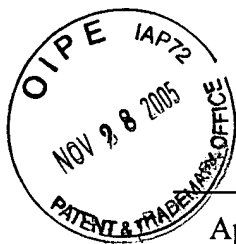
180

### SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 45,186	Telephone 510-841-4711
Name (Print/Type)	Steven R. Vosen	Date November 23, 2005	

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Kulp, et al.

Application No.: 10/658,906

Filed: September 10, 2003

Title: BACKSCATTER ABSORPTION  
GAS IMAGING SYSTEMS AND  
LIGHT SOURCES THEREFORE

Group Art Unit: 2877

Examiner: Nguyen, Dung T.

Docket No.: SAN.001US0 (SD-8423)

**CERTIFICATE OF MAILING/TRANSMISSION  
(37 C.F.R. § 1.8A)**

I hereby certify that this correspondence is, on the date shown below, being:  
(X) deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment  
Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450  
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November 23, 2005

Date

Steven R. Vosen

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT  
PURSUANT TO 37 CFR §1.56 AND §§1.97-1.98**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

The citations listed on the enclosed PTO-1449 Forms are submitted under 37 CFR §§1.97 and 1.98, and in compliance with the duty of disclosure as defined in 37 CFR §1.56. This Supplemental Information Disclosure Statement ("Supplemental IDS") is being submitted after the First Office Action on the merits and prior to the mailing of a Notice of Allowance or Final Rejection. The Examiner is requested to make these citations officially of record in the application.

This Supplemental IDS is being submitted subsequent to issuance of the first Office Action; the Commissioner is hereby authorized to charge the fee set forth in 37 C.F.R. §1.17(p) to deposit account No. 50-0583 to cover this fee under § 1.97(c).


This Supplemental Information Disclosure Statement Under 37 CFR §1.56 is not to be construed as a representation that any of the listed citations establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of any claim in the above-identified application. Additionally, this Supplemental Information

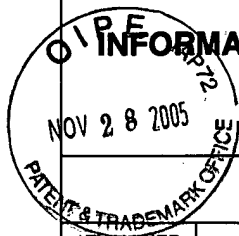
Disclosure Statement is not to be construed as a representation that a further search of the art has been made by Applicants, or that additional information relevant to the examination of this application does not exist unbeknownst to Applicants.

Respectfully submitted,

November 23, 2005

1563 Solano Ave., #206  
Berkeley, CA 94705  
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\_\_\_\_\_  
Steven R. Vosen  
Registration No. 45,186



# INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.  
2TM-104835 (SD-8467)

SERIAL NO.  
10/658,906

APPLICANT  
Kulp et al.

FILING DATE  
9/10/2003

GROUP  
2877

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
	AA	H1965	6/5/2001	Burns et al.	372	22	
	AB	3,609,398	9/28/1971	Bjorkholm	307	88.3	
	AC	3,628,186	12/14/1971	Rumson et al.	331	107 R	
	AD	3,948,345	4/6/1976	Rosencwaig	181	.5	
	AE	4,622,845	11/18/1986	Ryan et al.	73	24	
	AF	5,117,126	5/26/1992	Geiger	359	330	
	AG	5,202,560	4/13/1993	Kock et al.	356	435	
	AH	6,334,647	2/5/2002	Jourdain et al.	250	339.07	
	AI	6,757,096	6/29/2004	Schiller	359	330	
	AJ	6,813,429	11/2/2004	Price et al.	385	125	

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLI-CATION DATE	COUNTRY	CLASS	SUB-CLASS	TRANS- LATION YES   NO
	AP	EP 0 857 997 B1	24.10.2001	DE FR GB	7	G02F 1/39	X
	AQ	WO 98/01927	15.01.1998	GB, JB, US, European patent (AT, BE, CH, DE, DK, ES, FI, GB, GR, IE, IT, LU, MC, NL, PT, SRE	6	H01S 3/108 G02F 1/39	X

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, Place of Publication, Etc.)

	AL	M. J. T. Milton and P. T. Woods, "Pulse averaging methods for a laser remote monitoring system using atmospheric backscatter," Applied Optics, <b>26</b> , no. 13, 2598 (1987).
	AM	N. Menyuk, D. K. Killinger, and C. R. Menyuk, "Limitations of signal averaging due to temporal correlation in laser remote-sensing measurements," Applied Optics, <b>21</b> , no. 18, 3377 (1982).
	AN	T. G. McRae and T. J. Kulp, "Backscatter absorption gas imaging: a new technique for gas visualization," Applied Optics, <b>32</b> , no. 21, 4037 (1993).
	AO	T. J. Kulp, P. Powers, R. Kennedy, and U. Goers, "Development of a pulsed backscatter-absorption gas-imaging system and its application to the visualization of natural gas leaks," Applied Optics, <b>37</b> , no. 18, 3912 (1998).

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to Applicant.

FORM PTO-1449 (Modified)  LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT(S) INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)	ATTY. DOCKET NO.  2TM-104835 (SD-8467)	SERIAL NO.  10/658,906
	APPLICANT Kulp et al.	
	FILING DATE: September 10, 2003	GROUP ART UNIT: 2877

**OTHER ART (Include Author, Title, Date, Pertinent Pages, Etc.)**

C1	GREGORY DAVID MILLER, "Periodically Poled Lithium Niobate: Modeling, Fabrication, and Nonlinear-Optical Performance", Ph.D. Dissertation, Stanford University, July 1998.
C2	L. GOLDBERG, J. KOPLOW, D. G. LANCASTER, R. F. CURL, and F. K. TITTEL, "Mid-infrared difference-frequency generation source pumped by a 1.1-1.5- $\mu$ m dual-wavelength fiber amplifier for trace-gas detection", <i>OPTICS LETTERS</i> , Vol. 23, No. 19, October 1, 1998, pp. 1517-1519.
C3	D. G. LANCASTER, D. RICHTER, R. F. CURL, F. K. TITTEL, L. GOLDBERG, and J. KOPLOW, "High-power continuous-wave mid-infrared radiation generated by difference frequency mixing of diode-laser-seeded fiber amplifiers and its application to dual-beam spectroscopy", <i>OPTICS LETTERS</i> , Vol. 24, No. 23, December 1, 1999, pp. 1744-1746.
C4	H. DAHNKE, D. KLEINE, P. HERING, and M. MÜRTZ, "Real-time monitoring of ethane in human breath using mid-infrared cavity leak-out spectroscopy", <i>Appl. Phys. B</i> 72, May 9, 2001, pp. 971-975.
C5	NAOYA MATSUOKA, SHIGERU YAMAGUCHI, KENZO NANRI, TOMOO FUJIOKA, DIRK RICHTER and FRANK K. TITTEL, "Yb Fiber Laser Pumped Mid-IR Source Based on Difference Frequency Generation and Its Application to Ammonia Detection", <i>Jpn. J. Appl. Phys.</i> , Vol. 40, Part 1, No. 2A, February 2001, pp. 625-628.
C6	UTA-BARBARA GOERS, KARLA ARMSTRONG, RICKY SOMMERS, THOMAS J. KULP, DAHV A.V. KLINER, SAL BIRTOLA, LEW GOLDBERG, JEFFREY P. KOPLOW, and T.G. MCRAE, "Development of a compact gas imaging sensor employing a cw fiber-amp-pumped PPLN OPO", Presentation at CLEO, April 2001.
C7	SCOTT E. BISSON, KARLA A. ARMSTRONG, THOMAS J. KULP, and MATTHEW HARTINGS, "Broadly tunable, mode-hop-tuned cw optical parametric oscillator based on periodically poled lithium niobate", <i>APPLIED OPTICS</i> , Vol. 40, No. 33, 20 November 2001, pp. 6049-6055.
C8	CDRL Report No. A009, "Commercialization of Technologies to Lower Defense Costs, Draft Laser-Based Sensors for VOCs, Technology Assessment", 19 pages, March 22, 2002.
C9	"Construction of CW Optical Parametric Oscillators", <a href="http://www.nat.vu.nl/vakgroepen/atom/english/research/appspect/opus.html">http://www.nat.vu.nl/vakgroepen/atom/english/research/appspect/opus.html</a> , August 15, 2002.
C10	SERDP Fact Sheet, "Sensors for VOC/NOx and Metal Particulate Emissions Monitoring", March 25, 1999.

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant(s).	
(Information Disclosure Statement — Section 9 PTO-1449 (Modified) (6-1))	